

Appln. No. 10/619,299

Amendment dated: November 17, 2004

Response to Office Action dated September 23, 2004

### **Amendments to the Claims:**

The listing of claims will replace all prior versions and listings of claims in the application:

### **Listing of Claims:**

1. (Original) An antenna for RF communications comprising:
  - a radiating member comprising an electrically conductive material and having a slot extending from a first portion of said radiating member to a second portion of said radiating member, said radiating member being substantially tubular and defining a cavity therein;
  - an impedance matching device electrically connected to said radiating member, said impedance matching device disposed to match an impedance of said radiating member with at least one of an impedance of a signal source and an impedance of a load; and
  - a conductor operatively connecting said radiating member to said impedance matching device;
  - wherein said impedance matching device, said conductor, and at least a portion of said radiating member are integrally formed from a single conductive sheet.
2. (Original) The antenna of claim 1, wherein said non-conductive slot extends along a length of said radiating member.
3. (Original) The antenna of claim 1, wherein said radiating member and said impedance matching device have a common cross sectional profile.
4. (Original) The antenna of claim 1, further comprising at least one capacitor comprising at least a first conductive lead and a second conductive lead, said first conductive lead being connected to said radiating member proximate to a first side of said non-conductive slot, and said second conductive lead being connected to said radiating member proximate to a second side of said non-conductive slot.

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5. (Original) The antenna of claim 4, wherein said at least one capacitor is a variable capacitor.
6. (Original) The antenna of claim 1, wherein said impedance matching device is connected to said second portion of said radiating member.
7. (Original) The antenna of claim 1, wherein said impedance matching device comprises a transverse electromagnetic feed coupler.
8. (Currently amended) The antenna of claim 1, wherein the a field impedance of said antenna is less than about  $0 \pm 2j$  ohms.
9. (Currently amended) The antenna of claim 1, wherein the an absolute value of the a field impedance of said antenna is less than 5 ohms.
10. (Currently amended) An antenna for RF communications comprising:
  - a radiating member comprising an electrically conductive material, said radiating member being substantially tubular and defining a cavity therein;
  - a non-conductive slot extending from a first portion of said radiating member to a second portion of said radiating member; and
  - an impedance matching device electrically connected to said radiating member, said impedance matching device disposed to match an impedance of said radiating member with at least one of an impedance of a signal source and an impedance of a load;wherein the an absolute value of the a field impedance associated with said antenna is substantially less than 50 ohms.
11. (Original) The antenna of claim 10, wherein the field impedance of said antenna is less than about  $0 \pm 2j$  ohms.
12. (Original) The antenna of claim 10, wherein the absolute value of the field impedance of said antenna is less than 5 ohms.

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13. (Original) The antenna of claim 10, further comprising at least one capacitor comprising at least a first conductive lead and a second conductive lead, said first conductive lead being connected to said radiating member proximate to a first side of said non-conductive slot, and said second conductive lead being connected to said radiating member proximate to a second side of said non-conductive slot.
14. (Original) The antenna of claim 13, wherein said at least one capacitor is a variable capacitor.
15. (Original) The antenna of claim 10, wherein said impedance matching device is connected to said second portion of said radiating member.
16. (Original) The antenna of claim 10, wherein said impedance matching device comprises a transverse electromagnetic (TEM) feed coupler.
17. (Original) An antenna for RF communications comprising:  
a radiating member comprising an electrically conductive material, said radiating member being substantially tubular and defining a cavity therein;  
a non-conductive slot extending from a first portion of said radiating member to a second portion of said radiating member;  
an impedance matching device electrically connected to said radiating member, said impedance matching device disposed to match an impedance of said radiating member with at least one of an impedance of a signal source and an impedance of a load; and  
a conductor operatively connecting said radiating member to said impedance matching device;  
wherein said impedance matching device, said conductor, and at least a portion of said radiating member are integrally formed from a single conductive structure.
18. (Original) The antenna of claim 17, wherein said single conductive structure is formed by at least one of a casting process and an extrusion process.

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19. (Original) The antenna of claim 17, wherein said non-conductive slot extends along a length of said radiating member.
20. (Original) The antenna of claim 17, wherein said radiating member and said impedance matching device have a common cross sectional profile.
21. (Original) The antenna of claim 1, further comprising an electrostatic shield member, said electrostatic shield member having an axial slot extending from a first end of said electrostatic shield member to a second end of said electrostatic shield member.
22. (Currently amended) The antenna of claim 1, wherein said antenna is arranged to produce a lobed cardioid radiation pattern, ~~said cardioid radiation pattern having a general form of  $(1 - \cos^2 \theta)$ .~~
23. (Currently amended) An antenna for a mobile RF communications device comprising a radiation element arranged to produce a lobed cardioid radiation pattern, ~~said cardioid radiation pattern having a general form of  $(1 - \cos^2 \theta)$ .~~

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